1. A sample program is given below that calculated the factorial of a given numbers (using loop):

|  |
| --- |
| #include <stdio.h>  void main(){  int i,f=1,num;  printf("Input the number : ");  scanf("%d",&num);  for(i=1;i<=num;i++)  f=f\*i;  printf("The Factorial of %d is: %d\n",num,f);  } |

Sample output:

|  |
| --- |
| Input the number : 5  The Factorial of 5 is: 120 |

1. A sample program is given below that calculated the factorial of a given numbers (using loop and user defined function with no return type):

|  |
| --- |
| #include <stdio.h>  void main(){  int num;  printf("Input the number : ");  scanf("%d",&num);  fact(num);  }  void fact(int n){  int i, f=1;  for(i=1;i<=n;i++)  f=f\*i;  printf("The Factorial of %d is: %d\n",n,f);  } |

Sample output:

|  |
| --- |
| Input the number : 5  The Factorial of 5 is: 120 |

* **Task-1: Now, convert the above sample program that calculated the factorial of a given numbers using loop and user defined function with return type:**

**String related Programs:**

Here we will discuss about some program with strlen(), strcmp().

1. Example: C strlen() function

|  |
| --- |
| #include <stdio.h>  #include <string.h>  int main()  {  char a[20]="Program";  char b[20]={'P','r','o','g','r','a','m','\0'};  printf("Length of string a = %d \n",strlen(a));  printf("Length of string b = %d \n",strlen(b));  return 0;  } |

1. Example: C strcmp() function

|  |
| --- |
| Example: C strcmp() function  #include <stdio.h>  #include <string.h>  int main()  {  char str1[] = "abcd", str2[] = "abCd", str3[] = "abcd";  int result;  result = strcmp(str1, str2);  printf("strcmp(str1, str2) = %d\n", result);  result = strcmp(str1, str3);  printf("strcmp(str1, str3) = %d\n", result);  //compare str2 and str3    return 0;  } |

**File related problems:**

1. Open, Read and close a file: reading string by string

|  |
| --- |
| # include <stdio.h>  int main()  {  FILE \*fp ;  char data[100] ;  printf( "Opening the file test.txt in read mode" ) ;  fp = fopen( "test.txt", "r" ) ;  if ( fp == NULL )  {  printf( "Could not open file test.txt" ) ;  return 1;  }  printf( "Reading the file test.txt\n" ) ;  while( fgets ( data, 50, fp ) != NULL )  printf( "%s" , data ) ;  printf("Closing the file test.txt") ;  fclose(fp) ;  return 0;  } |

**test.txt**

|  |
| --- |
| hello,how are you?  i am fine, thank you. |

1. To create a .txt file that will store some student names and obtained marks.

|  |
| --- |
| #include <stdio.h>  int main()  {  char name[50];  int marks, i, num;  printf("Enter number of students: ");  scanf("%d", &num);  FILE \*fptr;  fptr = (fopen("student.txt", "w"));  if(fptr == NULL)  {  printf("Error!");  exit(1);  }  for(i = 0; i < num; ++i)  {  printf("For student%d\nEnter name: ", i+1);  scanf("%s", name);  printf("Enter marks: ");  scanf("%d", &marks);  fprintf(fptr,"\nName: %s \nMarks: %d \n", name, marks);  }  fclose(fptr) ;  } |
|  |

* **Task-2: To create a .txt file that will store some student names and obtained marks and read them.**

1. Example of Append

|  |
| --- |
| # include <stdio.h>  int main( )  {  char name[50];  int marks, i, num;  FILE \*fptr;  fptr = (fopen("test.txt", "a"));  printf("Enter number of students: ");  scanf("%d", &num);  if(fptr == NULL)  {  printf("Error!");  exit(1);  }  for(i = 0; i < num; ++i)  {  printf("For student%d\nEnter name: ", i+1);  scanf("%s", name);  printf("Enter marks: ");  scanf("%d", &marks);  fprintf(fptr,"\nName: %s Marks: %d \n", name, marks);  }  fclose(fptr);  FILE \*fop ;  char data[500] ;  printf( "Opening the file test.txt in read mode" ) ;  fop = fopen( "test.txt", "r" ) ;  if ( fop == NULL )  {  printf( "Could not open file test.txt" ) ;  return 1;  }  printf( "Reading the file test.txt\n" ) ;  while( fgets ( data, 500, fop ) != NULL )  printf( "%s" , data ) ;  printf("Closing the file test.txt") ;  fclose(fop) ;  return 0;  } |

More Lab Tasks:

1. Find the average value of the elements of an array.
2. Find the minimum and maximum value of the elements of an array.
3. Take two strings as your first and last name, then concatenate the two strings together so that you can find your full name:

e.g. First name = “Nazia” and Lastname = “Hossain”

output: full name = “Nazia Hossain”